have accomplished the first object of the constitution—namely, the purchase of the necessary land.

The site selected for the Zoological Park is about two miles from the centre of Washington. It contains an area of 166 acres, traversed by the stream called Rock Creek, and is stated to possess most attractive features which render it well adapted for the purpose.

There is already a Zoological Garden at Philadelphia in good working order, and there is a smaller establishment at New York, in the Central Park, under the charge of Mr. W. A. Conklin, who is well known to many naturalists on this side of the Atlantic. The new institution at the metropolis of the United States, to be inaugurated and carried on by the Central Government for the "recreation and instruction" of the American people, will evidently be on a much larger scale. It will also have the advantage of the unlimited support always accorded by the Americans to their great national undertakings. If the Commissioners are inclined to take advice from Europe—and we have no reason to suppose the contrary—we should recommend that, before planning and commencing the necessary buildings, they should visit the Gardens of the Zoological Society in London, and the principal institutions of a like nature on the Continent, and take advantage of the experience gained by previous workers in the same field. No amount of plans and estimates, which, we are told, they are now asking for from the older institutions, will give them the advantages to be derived from a personal examination of these establishments and a few weeks' study of the mode in which they are worked.

JAMES NASMYTH.

EVERYONE was sorry to hear of the death of Mr James Nasmyth, the great engineer. His name is familiar to the entire English-speaking world, and there can be no doubt that he stands in the front rank of those who have advanced the material interests of mankind by the application of science to industrial methods.

So far as outward events were concerned, there was nothing very remarkable in his career. The real history of his life is the history of his inventions. He was born at Edinburgh on August 19, 1808, and was the youngest child of a family of eleven. His father was Alexander Nasmyth, who achieved considerable distinction as a painter. In a good summary of the facts of his life, printed in the *Times* of May 8, it is said that the boy gave very early evidence of a decided taste for mechanical pursuits. At school this taste was strengthened by intimacy with the son of an ironfounder, whose works young Nasmyth was never tired of visiting. He displayed so much aptitude for model-making that when he began to attend scientific classes at the University of Edinburgh he was able to pay his own fees by the sale of models of steam-engines, and other mechanical contrivances.

In 1829, Mr. Nasmyth came to London, and the two following years he spent in the service of Mr. Maudslay, the founder of the well-known firm of engineers. He then returned to Edinburgh, where he devoted himself for a short time to the construction of a set of engineering tools. With these tools, and a very small capital, he ventured to begin business on his own account in Manchester; and so many orders for work were received that new premises soon became necessary. He accordingly secured a plot of ground, 12 acres in extent, at Particroft, near Manchester; and this site he covered with the collection of workshops known as the Bridgewater Foundry. It was at this establishment that Mr. Nasmyth invented and perfected the mechanical tools with which his name is associated. The most important of them is the steam-hammer, the power and delicacy of which are universally known. It was invented in 1839, when he was still a young man. The *Times* says:—"The first idea of the hammer occurred to its inventor when he was asked by the Great Western Railway Company to construct a wrought-iron intermediate paddle shaft for a proposed ship called the *Great Britain*. Other firms had declined to undertake the construction of a shaft with a size and diameter never before attempted. The paddle shaft was never forged, as the screw was invented about this time. But meanwhile Nasmyth had invented a means of raising an enormous block of iron to a sufficient height and of regulating and directing its descent upon the anvil below."

Among Mr. Nasmyth's other inventions we may mention his "reversing direct-acting rolling mill."

In 1857, at the age of 48, he retired from business; and from that time he lived at Penshurst, where he found an outlet for his energies in the enthusiastic study of astronomy—a study which led to the publication of "The Moon considered as a Planet, a World, and a Satellite," written by him in conjunction with Dr. James Carpenter. Mr. Nasmyth wrote also "Remarks on Tools and Machinery," in Baker's "Elements of Mechanism" (1858). An autobiography, edited by Dr. Smiles, was published in 1883. He inherited to some extent his father's artistic faculty, and the exercise of his talent for drawing was a constant source of genuine pleasure.

Mr. Nasmyth used to say that he had never known what it was to be ill. For some time, however, his health was manifestly failing; and several weeks ago he came to town. He stayed at Bailey's Hotel, Gloucester Road; and there, in his eighty-second year, he died, on Wednesday, May 7.

NOTES.

MR. ALFRED GILBERT, A.R.A., has been commissioned to execute the Joule Memorial at Manchester.

PROF. W. K. SULLIVAN, President of the Cork Queen's College, and well known as a chemist, died on Monday at the College. He was 68 years of age, and had held the position of President since 1872, in succession to the late Sir Robert Kane.

IT is announced that Sir Frederick Mappin, M.P., has handed over to his co-trustees of the Sheffield Technical School £1000 for the purpose of founding two scholarships, each of the value of £15 per annum, in perpetuity.

THE Paris Academy of Sciences has offered a prize of 3000 francs for the best essay on the phenomena of fertilization in Phanerogams, especially in reference to the division and translation of the nucleus, and the relation between these phenomena and those which occur in the animal kingdom, to be sent in before June 1, 1891.

PROF. VON NORDENSKIÖLD lately announced to the Stockholm Academy of Sciences that a scientific expedition would start during the summer for Spitzbergen. Among the party will be his son, M. G. Nordenskiöld, and MM. Klinckowström and Bahaman. The expenses of the expedition will be defrayed by Baron Dickson and M. F. Beijer, the publisher.

THE ethnological collections made by Prof. Bastian during his journey through Russian Central Asia, have been brought to Berlin by the Professor's companion, Herr A. Dsirne. Prof. Bastian is at present at Madras.

DR. THORODDSEN, of Reikjavik, to whom the Linné Memorial Medal has been given by the Stockholm Academy of Sciences for his collection of fossil plants, has received 1200 kronen (£65) from Baron Dickson to enable him to investigate the Icelandic peninsula of Sneefieldness. Dr. Thoroddsen hopes soon to conclude his geological researches concerning this ancient Norse settlement.

Mr. T. G. Paterson, of Edinburgh, has sent to the *Daily News* the following information regarding what will be the most northerly telephone in Europe:—"My brother, Mr. Spence Paterson, H.M. Consul for Iceland, writes to me: 'It is proposed to put up a telephone line between Reikjavik and Havnefiord. The cost of apparatus and construction is reckoned under Kr. 30,000, and a small company is to raise the capital.'"

We learn from *Humboldt* that in connection with the tenth International Medical Congress, to be held this year in Berlin from August 4 to 9, there is to be an International Medico-Scientific Exhibition. The following kinds of objects will be exhibited: new or improved scientific instruments and apparatus for biological and especially medical purposes, including apparatus for photography and spectrum analysis so far as they are of service to medicine; new pharmaceutical and chemical stuffs and preparations; new or improved instruments for operative purposes of medicine, including electrotherapy; new plans and models of hospitals, convalescent homes, disinfection arrangements, baths, &c.; new arrangements for care of the sick, including means of transport, and baths for invalids; newest apparatus for hygienic purposes, &c. Communications (marked "Ausstellungsangelegenheit") should be sent to the office of the Congress, Dr. Lassar, Berlin, N.W., Karlstrasse 19.

The dinner given in honour of M. de Lacaze-Duthiers by the Club called *Scientia*, on April 30, seems to have been a great success. It took place in the Hôtel Continental. M. Charles Richet, who presided, delivered an eloquent speech on the achievements of the Club's guest—"that conqueror of the sea, and apostle of zoology"—calling attention especially to his services as the founder of the marine laboratories of Roscoff and Banyuls.

The *Kew Bulletin* for May opens with an interesting collection of facts relating to efforts which are being made to obtain commercial rubber from the "Abba" tree of West Africa. There are also sections on a mealy bug which has lately been very destructive to cultivated plants at Alexandria; on Mauritius hemp machines; on Siberian perennial flax; and on Liberian coffee.

The several Australian Governments have completed their arrangements with regard to the Mining Exhibition which is to be held this year at the Crystal Palace. According to the *Australian Mining Standard*, the best display will probably be made by New South Wales. Mr. Wilkinson, the Government Geologist, will visit England as the official representative of that colony; and the collections to which high honours were awarded at the New Zealand Exhibition will be sent to London.

The first number of "Records of the Australian Museum," edited by Dr. E. P. Ramsay, the Curator, has been issued. The editor explains that the rapid increase in the collections of the Museum, and the gradual acquisition of extensive series of new, or little known, forms from Australia, New Guinea, and the Pacific islands, have "forcibly brought under the notice of the trustees the necessity of officially publishing the investigations of their scientific staff." Accordingly the "Records" will appear as an occasional periodical. Among the contents of the first number are a report on a zoological collection from the Solomon Islands, by E. P. Ramsay and J. D. Ogilby; a re-description of an Australian skink, by the same writers; a report of a collecting trip to Mount Kosciusko, by R. Helms; general notes made during a visit to Mount Sassafras, Shoalhaven district, by R. Etheridge, Jun., and J. A. Thorpe; and a report on a collecting trip to North-Eastern Queensland during April to September 1889, by E. J. Cairn and R. Grant.

The Aëronautical Society of Great Britain will hold a meeting at the Society of Arts, on Friday, May 16, when a lecture will be delivered by Mr. Henry Middleton, of Slough, on "the fundamental principles of flight, and their application to the construction of flying machines." Mr. Edgar Stuart Bruce will read a short paper on electric balloon signalling, with details of some late experiments in Belgium.

An obituary notice of Theodor Kirsch has been issued as the fifth of the series of "Abhandlungen und Berichte" of the Dresden Zoological and Anthropological Museum, edited by Dr. A. B. Meyer. Herr Kirsch had charge of the entomological department of the Museum. The notice is accompanied by a portrait, and by a list of his writings.

The buildings of the Botanical Museum and Laboratory of the Michigan Agricultural College have been entirely destroyed by fire, and with them the whole of the Wheeler Herbarium, containing over 7000 species, the most complete collection of Michigan plants ever brought together.

The well-known botanical explorer Mr. C. C. Parry died at Davenport, Iowa, on February 20, from an illness following on an attack of influenza.

Dr. Tschirch, of Berlin, has been appointed Professor of Pharmacology in the University of Berne.

Dr. Istvànffy-Schaarschmidt has been appointed Curator of the botanical collections in the National Museum of Buda-Pesth.

Herr J. Bornmüller was engaged during April in a botanical investigation in Asia Minor. He began with the mountainous region in the neighbourhood of Amasia, and proceeded westwards into Galatia and Paphlagonia.

Two slight shocks of earthquake were felt at Sofia on May 10, at half-past 2 and at 3 o'clock in the afternoon. The seismic disturbances travelled in a vertical direction

The Deutsche Seewarte has just published Part III. of "Ueberseeische meteorologische Beobachtungen," containing a valuable series of observations from distant stations, carefully compiled in the most desirable form. Full particulars are given about the positions of the stations, and the construction of the instruments.

We have received the Report of the Meteorological Service of the Dominion of Canada for the year 1886. It contains, as before, very clear tables of the daily, monthly, and quarterly means, for a large number of stations, and values of bright sunshine for 14 stations. The storm signal service seems to be much appreciated, and to be very successful; Mr. Carpmael states that, whenever a storm of any magnitude occurred, due warning was given to the shipping. The issue of daily weather forecasts has also been very successful—88·6 per cent. having been fully verified. The system of disseminating weather information, by attaching metal disks to the railway cars, has been perfected, and Mr. Carpmael states that these forecasts are as eagerly sought for by farmers and people resident in country districts as by the inhabitants of the towns where they are published. The Report also contains five coloured plates, showing the quarterly and annual distribution of rainfall in Ontario.

The daily and yearly variation, and the distribution, of wind-velocities in the Russian Empire have been fully investigated by Kiersnowski (*Repert. f. Meteor.*). The highest velocities (mean 6·3 metres per second) occur in the Baltic provinces. On the White Sea, on the Caspian, in the region of the North Russian lakes, and on the Steppe, the values are also high; in the forest region and the Caucasus they are low. Towards the interior of Asia the velocity decreases, and in Transbaikalia is the minimum (1·5 m. per second). Further east, towards the Pacific, the velocity increases. In the annual period, the maximum is pretty uniformly in winter, the minimum in summer. A maximum in spring, and a minimum in summer or autumn, are peculiar to the Caspian region, the Ural, and West Siberia, with Central Asia. In Eastern Siberia the minimum is in winter. The daily variation shows distinctly the connection with cloudiness. The greatest amplitude occurs in the brighter part of the year; in East Siberia in winter, and in the rest of the country in summer. In general the amplitude increases regularly with the clearness of the sky eastward, and on land it is greater than on the sea.

A STATISTICAL investigation of lightning-strokes in Central Germany, covering a period of 26 years, has been recently carried out by Herr Kastner (*Globus*). The number of cases has increased about 129 per cent., and last year (1889) it amounted to 1145. The author distinguishes four thunderstorm paths. The starting-points of all these are in hills, and in their course, the woodless districts and flat country, river-valleys and low meadow-ground about lakes, seem specially liable, while the wooded and hilly parts generally escape. The hottest months (June, and especially July) and the hottest hours of the day, or those immediately following them (3 to 4 p.m.), show the most lightning strokes.

IN *Le Globe* for March, M. E. Chaix has an article on the general circulation of the ocean. He enters into the various means adopted for determining ocean currents, and the history of the various theories from the earliest times, and gives a brief summary of those which are now generally adopted. The author adopts the opinion expressed by Humboldt, that several causes must be sought for, and that they cannot be explained by any single one. His conclusions are: (1) that differences of density, especially those caused by temperature, induce a slow progression of the water at a depth towards the equator, but that their action is apparently nothing at the surface; (2) that the prevailing winds cause sensible currents at the surface, and these movements in time penetrate to a certain depth, but that their agency does not explain everything; (3) every motion, whether on the surface or at a depth, causes a compensating movement, either slow or rapid. These movements play the second part in the superficial circulation, and explain generally what cannot be attributed to the direct action of the wind; therefore they afford a key to a number of apparent anomalies.

IN the last report of the Central Park Menagerie, New York, it is noted that the principal cause of death among the animals in 1889 was congestion of the lungs. Among the most valuable specimens lost by this disease were—a lioness, purchased March 4, 1886; two pumas, one received in 1883, the other in 1885; one llama and one emu, both purchased in 1888; one sea-eagle and one migratory pigeon, the former of which had been in the collection for eighteen, the latter for thirteen, years. The death of a young hippopotamus, four days after birth, was also attributed to congestion of the lungs. In describing what happened in the case of this interesting creature, Mr. W. A. Conklin, the Director, points out that the Zoological Gardens of Europe have been particularly unfortunate in regard to the first-born of the hippopotamus. "The first two born in the London Garden lived two and four days respectively. The first two born in the Jardin des Plantes, Paris, were killed by their parents shortly after birth. In the Amsterdam Garden the first two died from the neglect of their parents, and in St. Petersburg Garden the first three died from the same cause."

IN a note in the current number of the *American Naturalist*, Mr. F. F. Payne, of Toronto, records an interesting fact which often came under his notice during a prolonged stay at Hudson's Strait. "Here," he says, "the Eskimo might often be seen lying at full length at the edge of an ice-floe, and, although no seals could be seen, they persistently whistled in a low note similar to that often used in calling tame pigeons, or, if words can express my meaning, like a plaintive phe-ew, few-few, the first note being prolonged at least three seconds. If there were any seals within hearing distance they were invariably attracted to the spot, and it was amusing to see them lifting themselves as high as possible out of the water, and slowly shaking their heads, as though highly delighted with the music. Here they would remain for some time, until one perhaps more venturesome than the rest, would come within striking distance of the Eskimo, who, starting to his feet with gun or harpoon, would often change the seal's tune of joy to one of sorrow, the others making off as fast as possible. The whistling had to be continuous, and was more effective if performed by another Eskimo a short distance back from the one lying motionless at the edge of the ice. I may add that the experiment was often tried by myself with the same result."

A NEW instalment of the "Palæontologia Indica" has been published. It forms the first part of vol. iv. of the series dealing with "salt-range fossils," by Dr. William Waagen. This volume is being written in fulfilment of a promise made by Dr. Waagen when, in 1879, he began his publications on the different rock-groups of the salt-range and the fossils contained therein. He then undertook to collect in a special volume "all the geological conclusions that may be drawn from the detailed study of the different faunæ, and to give at the same time geological details as to the occurrence of the single forms."

THE Straits Branch of the Royal Asiatic Society, has published the twentieth number of its Journal. It contains a report on the destruction of coco-nut palms by beetles, by H. N. Ridley; British Borneo—sketches of Brunai, Sarawak, Labuan, and North Borneo, by W. H. Treacher; notes on names of places in the island of Singapore and its vicinity, by H. T. Haughton; journal of a trip to Pahang, &c., by W. Davison; and a list of the birds of the Bornean group of islands, by A. H. Everett. A map of Borneo, and a map of Palawan and adjacent islands, are given. The former shows roughly the distribution of highlands and lowlands in Borneo, and the localities at which collections of birds have been made are indicated.

CLOSE to the Hungarian village of Toszeg, on low ground often flooded by the Theiss, are the remains of a prehistoric settlement, which have been recently described by a Scandinavian man of science, M. Undset. While in Upper Italy a sort of basin seems often to have been made with an earth-wall, and dwellings built in this on a pile-supported platform; the buildings near Tozseg have been similarly raised in two long parallel trenches. The hollow space under the platform served as a place for refuse of all sorts, and it must often have held stagnant water. When it got full, the settlement appears to have been burnt down, and a new set of buildings raised on new and higher piles. Among the remains are bones of cattle, stags, goats, swine, &c., vessels made of horn, stone, baked clay, a few bronze articles (needles, knives), polished stone hammers, wedges, chisels, tooth-ornaments, &c. The settlers seem to have practised agriculture, hunting, and fishing. Discussing this "find," M. Undset has some remarks on the relations of the prehistoric civilization of Hungary to that of Upper Italy and other European regions. In Northern Italy the bronze period proper appears to have corresponded pretty nearly with the *terramare* settlements; but in Hungary it was much longer, and was in great part contemporaneous with the iron period in Italy. When the bronze period began in Hungary is very doubtful, but M. Undset considers it to have been not later than in Upper Italy. It is highly probable that the very early migration of Italians into the Apennine peninsula, and the migrations into the Balkan peninsula culminating in that of the Dorians, came from the middle or lower Danube valley. Hence the importance of prehistoric remains in Hungary for a knowledge of prehistoric events in Central Europe.

ANOTHER important paper is contributed by M. Moissan to the current number of the *Comptes rendus* upon carbon tetrafluoride, CF_4. Five modes of preparing the gas are described, together with several new properties which have been investigated since the publication of the preliminary notice a few weeks ago. When gaseous fluorine is allowed to enter a platinum tube filled with marsh gas, CH_4, a violent combination, accompanied by incandescence, takes place, carbon being deposited and a mixture of various fluorides including carbon tetrafluoride formed. Fluorine also reacts somewhat violently with chloroform, $CHCl_3$. When the free element is led into cooled chloroform it is largely absorbed, carbon tetrafluoride being again produced, and for the most part remaining dissolved in the excess of chloroform. If the fluorine is heated to 100° before passing into the chloroform incandescence occurs, a flame appears at the exit opening of the platinum apparatus, carbon is again deposited, and the tetrafluoride largely found in the gaseous product. Fluorine also expels chlorine from tetrachloride of carbon, CCl_4, for if it is led into a quantity of the tetrachloride contained in a gently-warmed platinum flask, the issuing gas is found to be a mixture of free chlorine and carbon tetrafluoride. A large proportion of the latter gas remains dissolved in the excess of carbon tetrachloride, and may be readily obtained fairly pure by gently boiling the residual liquid in a glass vessel and collecting the gas over mercury. As described in our notice of the preliminary paper the lighter varieties of amorphous carbon, such as wood charcoal and lamp black, take fire in a stream of fluorine and continue burning as long as combination occurs, the product consisting of several gaseous fluorides, of which the tetrachloride is present in greatest proportion. The method, however, by which carbon tetrafluoride can be prepared most conveniently and in the purest form is as follows. A quantity of silver fluoride, AgF, is placed in a brass U-tube fitted with two side tubes. Through one of these latter a stream of vapour of carbon tetrachloride is driven; the other serves as exit tube for the products of the reaction. The apparatus is first filled with carbon tetrachloride vapour, the portion containing the fluoride of silver is then heated to 195°–220° C. and a steady stream of the tetrachloride maintained as long as gas is evolved at the mercury trough. It is advisable to add to the apparatus a small metallic spiral tube which can be cooled to − 23° in order to condense any escaping vapour of the tetrachloride, and which is so arranged that the condensed liquid can be returned to the vessel in which the tetrachloride is being vapourized and so passed again into the reaction tube. The last traces of carbon tetrachloride may be removed by allowing the gas to stand twenty-four hours over mercury in contact with a few scraps of caoutchouc. In order to free it from admixed heavier fluorides advantage is taken of the fact that large quantities of the tetrafluoride are absorbed by absolute alcohol. On agitation with a little absolute alcohol, therefore, the tetrafluoride is absorbed, and may be again liberated either by addition of water, in which the gas is scarcely perceptibly soluble, or by ebullition. If the latter plan is adopted the alcohol vapour may be removed by washing through sulphuric acid. It is important to use a metallic reaction tube in the preparation, inasmuch as glass is rapidly attacked by carbon tetrafluoride, the product of the reaction in a glass vessel consisting of a mixture of silicon and carbon tetrafluorides, carbon dioxide, and a heavier fluoride of carbon, $CF_4 + SiO_2 = CO_2 + SiF_4$. Carbon tetrafluoride liquefies at − 15° at the ordinary atmospheric pressure, and under a pressure of four atmospheres at 20°. When passed over heated sodium it is completely absorbed, carbon being deposited and sodium fluoride formed. Aqueous potash appears to be without action upon it, but alcoholic potash slowly absorbs it with formation of carbonate and fluoride of potassium.

THE additions to the Zoological Society's Gardens during the past week include a Blossom-headed Parrakeet (*Palæornis cyanocephalus* ♂), two Red-eared Bulbuls (*Pycnonotus jocosus*) two Red-vented Bulbuls (*Pycnonotus hæmorrhous*), a Large Hill-Mynah (*Gracula intermedia*) from India, a Red-sided Eclectus (*Eclectus pectoralis* ♀) from New Guinea; two King Parrakeets (*Aprosmictus scapulatus* ♂ ♀), a Pennant's Parrakeet (*Platycercus pennanti*), a Chestnut-eared Finch (*Amadina castanotis* ♀) from Australia, a Ceylonese Hanging Parrakeet (*Loriculus asiaticus*) from Ceylon, a Mealy Amazon (*Chrysotis farinosa*), two Yellow-shouldered Amazons (*Chrysotis ochroptera*), a Blue-fronted Amazon (*Chrysotis æstiva*), a Red-crested Cardinal (*Paroaria cucullata*) from South America, a Levaillant's Amazon (*Chrysotis levaillanti*) from Mexico, two Panama Amazons (*Chrysotis panamensis*) from Panama, a Yellow-vented Bulbul (*Pycnonotus crocorrhous*) from Sumatra, two Orange-cheeked Waxbills (*Estrelda melpoda*), two Red-bellied Waxbills (*Estrelda rubriventris*), a Cut-throat Finch (*Amadina fasciata* ♂), a Shining Weaver Bird (*Hypochera nitens*), an Olive Weaver Bird (*Hyphantornis olivaceus*) from South Africa, a Crimson-crowned Weaver Bird (*Euplectes flammiceps*), a Grenadier Weaver Bird (*Euplectes oryx*), a Green Glossy Starling (*Lamprocolius chalybeus*) from West Africa, two Madagascar Weaver Birds (*Foudia madagascariensis* ♂ ♀) from Madagascar, a Red-headed Cardinal (*Paroaria larvata*) from Brazil, a Cardinal Grosbeak (*Cardinalis virginianus* ♀) from North America, presented by Dr. Seton; a Red-eared Bulbul (*Pycnonotus jocosus*), a Red-vented Bulbul (*Pycnonotus hæmorrhous*) from India, presented by Lieut.-General Sir H. B. Lumsden, K.C.S.I.; a Ring-necked Parrakeet (*Palæornis torquatus* ♀) from India, presented by Mrs. O. Harvey; a Redwing (*Turdus iliacus*), British, presented by Mr. J. Newton Hayley; a Common Viper (*Vipera berus*), a Slowworm (*Anguis fragilis*), British, presented by Dr. W. K. Sibley; three Green Tree Frogs (*Hyla arborea*) from France, presented by Mrs. Humphreys; two Hartebeests (*Alcelaphus caama* ♂ ♀) from South Africa, a Bennett's Wallaby (*Halmaturus bennetti* ♂) from Tasmania, a Black Wallaby (*Halmaturus walabatus* ♀), two Brush-tailed Kangaroos (*Petrogale penicillata* ♂ ♂) from New South Wales, four Common Quails (*Coturnix communis*), European, deposited; two Demoiselle Cranes (*Grus virgo*) from North Africa, purchased; a Japanese Deer (*Cervus sika* ♂), a Hog Deer (*Cervus porcinus* ♀), ten Cuming's Octodons (*Octodon cumingi*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

OBJECTS FOR THE SPECTROSCOPE.

Sidereal Time at Greenwich at 10 p.m. on May 15 = 13h. 34m. 18s.

Name.	Mag.	Colour.	R.A. 1890.	Decl. 1890.
			h. m. s.	° ′
(1) Uranus, May 15 ...	—	Bluish-green.	13 27 40	− 8 33
,, ,, 29 ...	—	—	13 26 4	− 8 24
(2) G.C. 3615	—	—	13 32 4	+ 9 27
(3) 163 Schj.	7	Reddish-yellow.	13 48 29	+40 47
(4) 84 Virginis	6	Yellow.	13 37 30	+ 4 6
(5) ζ Virginis	3	White.	13 29 12	− 0 2
(6) T Ursæ Maj.	Var.	Red-yellow.	12 31 23	+60 6

Remarks.

(1) A question of great interest was raised last year by spectroscopic observations of the planet Uranus. As is well known, the spectra of Uranus and Neptune differ very widely from those of the other planets. They show no solar lines in the visible spectrum even when telescopes of very large apertures are em-